APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,953	07/03/2003	Moon-Cheol Kim	1349.1189	3518

21171   7590   05/18/2007

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EXAMINER
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ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
05/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/611,953	KIM, MOON-CHEOL
	Examiner	Art Unit
	Erick Rekstad	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1.) ☒ Responsive to communication(s) filed on <u>12 February 2007</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-50</u> is/are pending in the application.

    4a) Of the above claim(s) <u>8-16 and 19-50</u> is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-7,17 and 18</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some * c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

This is a Non-Final Office Action for application no. 10/611,953 in response to the Restriction Election filed on February 12, 2007.

Response to Arguments

In regards to the Applicants arguments related to the Election of Species requirement. The Examiner maintains that species I, II, III, IV and V are distinct from each other since each contains features which are not found in the other species.

Species II contains an average signal, filtering means, third threshold, and a Title Insertion or Picture in Picture signals. These features are unrelated to Species I.

Species III contains histogram detection units which compute each number of respective pixels having the same value and a decision unit outputting a scene change signal in accordance with the number of the pixels of each of the first and second video signals. Again, these features are unrelated to Species I.

Species IV contains histogram detection units which form correlation information between histograms of a chroma or luminance color signal and detect a scene change unrelated to a movement in an image frame from the formed correlation information. Species I, II, and III do not require a histogram detection unit which detects a scene change.

Species V is a method for scene change detection which outputs a scene change signal in accordance with the respective numbers of the pixels of the first and second video signals. This feature is distinct from the other species.

Therefore, the elected Species I, related to claims 1-7, 17 and 18, will be

examined. Claims 8-16 and 19-50 will be considered withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by US

Patent 5,801,765 to Gotoh et al.

[claim 1]

As shown in Figure 10, Gotoh teaches the prior art histogram based scene

change detector. The detector comprises a first and second histogram detection units

(102) computing histograms from input first and second color signals respectively. Note:

the claim does not require the first and second histogram detection units to be separate

distinct units.

Gotoh further teaches a cross correlation coefficient calculation unit (105 and

106) calculating a correlation value between the first and second histograms computed

by the first and second histogram detection units, respectively; and a decision unit

outputting a scene change signal by comparing the correlation value with a threshold

(107) (Col 1 Line 53-Col 2 Line 14).

[claim 5]

Gotoh teaches the histogram detection units quantize the input first and second color signals to signal bands, respectively, each calculated the number of pixels having the same values of the quantized first and second color signals with respect to all pixels in a predetermined frame region, and calculate the first and second histograms by standardizing the calculated respective numbers, respectively (Col 1 Lines 58-60).

Claims 1-7, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,719,643 to Nakajima.

[claims 1 and 2]

As shown in Figure 2, Nakajima teaches the use of a first and second frame buffers (1 and 2) storing two image frame data, respectively, to detect a scene change; and a firest and second color space conversion units (3 and 4) converting the image frame data stored in the first and second frame buffers into the first and second color signals to be outputted to the first and second histogram detection units ($H_{n,j,k}$ and $H_{n-1,j,k}$ of Chrominance Histogram Correlation Unit) (Col 3 Line 66-Col 4 Line 7, Col 4 Lines 19-27, Col 6 Lines 55-65).

A first and second histogram detection units ($H_{n,j,k}$ and $H_{n-1,j,k}$) computing histograms from input first and second color signals, respectively;

A cross correlation coefficient calculation unit (8, Fig. 2) calculating a correlation value between the first and second histograms computed by the first and second histogram detection units (Col 6 Lines 55-65), respectively; and

A decision unit outputting a scene change signal by comparing the correlation value with a threshold (Col 6 Line 66-Col 7 Line 4, Fig. 7).

[claims 3 and 4]

Nakajima teaches the color signals are luminance and chroma signals (Col 4

Lines 4-7).

[claim 5]

Nakajima teaches the histogram detection units quantize the input first and

second color signals to signal bands, respectively, each calculated the number of pixels

having the same values of the quantized first and second color signals with respect to

all pixels in a predetermined frame region, and calculate the first and second histograms

by standardizing the calculated respective numbers, respectively (Col 6 Lines 31-54,

Fig. 6).

[claim 6]

Nakajima further teaches the decision unit outputs the scene change signal when

the correlation value (ρ) is less than the threshold (δ) (Col 7 Lines 11-17, Fig. 7).

[claim 7]

Nakajima teaches the threshold(δ) value is 0.9 (Col 7 Line 40-44).

[claims 17 and 18]

As shown above for claims 1 and 2, Nakajima teaches the storing two image

frame data separately to detect the scene change (1 and 2, Fig. 2); and converting the

stored two frame data into the first and second color signals (A and B, Fig. 2);

Computing first and second histograms ($H_{n,j,k}$ and $H_{n-1,j,k}$ of Chrominance

Histogram Correlation Unit) with respect to input first and second color signals

respectively;

Calculating a correlation value between the first and second histograms(ρ); and

Outputting a scene change signal when the correlation value is less than a

threshold (δ) (Col 3 Line 66-Col 4 Line 7, Col 4 Lines 19-27, Col 6 Line 55-Col 7 Line 4,

Col 7 Lines 11-17, Figs. 2 and 7).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 6, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Gotoh in view of US Patent 6,995,805 to Park.

[claim 6]

As shown above for claim 1, Gotoh teaches a scene change detector (Fig. 10).

Gotoh teaches the use of detecting a scene change when a correlation value is higher

than a threshold (Col 2 Lines 9-14). Gotoh is silent on the detecting a scene change

when a correlation value is lower than a threshold.

As shown in Figure 6, Park teaches a scene change detector using histograms

wherein the scene change is detected when a correlation value is higher than a

threshold (TA and TC) and lower than a threshold (TB) (Col 6 Lines 47-67, Col 7 Line

32-46, Col 7 Line 62-Col 8 Line 24, Figs. 5 and 6). It would have been obvious to one

of ordinary skill in the art at the time of the invention to use the scene change detection

method of Park with the scene change detector of Gotoh in order to automatically detect

scene changes while reducing false detections as taught by Park (Col 1 Lines 58-66,

Col 2 Lines 13-39).

[claims 17 and 18]

As shown in Figure 5, Gotoh teaches the storing two image frame data

separately to detect the scene change (2, Fig. 5). Note: the frames are stored at

different times and therefore are stored separately. Gotoh further teaches converting

the stored two frame data into the first and second color signals (3, Fig. 5);

Computing first and second histograms (5 and 6) with respect to input first and

second color signals respectively;

Calculating a correlation value between the first and second histograms(7); and

Outputting a scene change signal using the correlation value (10) (Col 9 Line 50-

Col 10 Line 2, Col 10 Lines 25-31). Gotoh is silent on the detecting a scene change

when a correlation value is lower than a threshold.

As shown in Figure 6, Park teaches a scene change detector using histograms

wherein the scene change is detected when a correlation value is higher than a

threshold (TA and TC) and lower than a threshold (TB) (Col 6 Lines 47-67, Col 7 Line

32-46, Col 7 Line 62-Col 8 Line 24, Figs. 5 and 6). It would have been obvious to one

of ordinary skill in the art at the time of the invention to use the scene change detection

method of Park with the scene change detector of Gotoh in order to automatically detect

scene changes while reducing false detections as taught by Park (Col 1 Lines 58-66,

Col 2 Lines 13-39).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erick Rekstad whose telephone number is 571-272-7338. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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